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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,244	02/12/2004	Tsukasa Kuboshima	2018-847	4182

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/776,244

Applicant(s)

KUBOSHIMA ET AL.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 021204.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because on lines 3-6 and 9 of the claim, "gain" should read --offset--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Udagawa (Japan Publication 2002-206419) in view of Frick et al. (U.S. Patent 5,329,818).

Re claims 1 and 6, Udagawa discloses an exhaust emission control device of an internal combustion engine (1) including a diesel particulate filter (3) disposed in an exhaust passage of the internal combustion engine for trapping particulates in exhaust, and a pressure sensor (5, 6) for detecting a differential pressure across the diesel particulate filter to determine the timing for oxidizing the particulates accumulated in the diesel particulate filter based on the differential pressure, which increases with the accumulation of the particulates, the device comprising:

- means (Figure 3) for setting a correction factor (α) and performing a correction information acquiring process for reading output from the pressure sensor when the engine is not running, determining offset correction factors (C) for removing offset errors of the pressure sensor, the offset errors being the difference between the read-out output from the pressure sensor and an output from the pressure sensor at the time when the pressure is zero, which should be constant irrespective of temperature changes; and

- means (see Figure 2) for reading the output from the pressure sensor when the engine is running for measuring a differential pressure across the diesel particulate filter and for correcting the output of the pressure sensor with the offset correction factor.

Udagawa, however, fails to disclose that a reading from the pressure sensor is sensitive to a sensor temperature and as such, the offset correction factors are further determined based on the sensor temperature.

As shown in Figures 1-5, Frick et al. teach that a pressure sensor such as the one used by Udagawa is sensitive to its temperature. As such, Frick et al. teach the use of a temperature sensor (227) to estimate a temperature of a pressure sensor (5). A table or map of offset correction errors (K_1 , K_2) is generated based on a range of sensor temperatures. The corrected pressure reading of the pressure sensor is then determined based on the raw pressure reading corrected by the offset correction errors. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the pressure sensor taught by Frick et al. in the control device of Udagawa, since the use thereof would have timely regenerated the particulate filter by correctly determining when the filter is saturated.

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Re claim 2, in the modified control device of Udagawa, the correction factor setting means is designed such that estimated temperatures of the pressure sensor are divided into a plurality of temperature ranges, and the memory stores each offset correction factors to match with each temperature range (see lines 40-50 of Frick et al.).

Re claim 3, in the modified control device of Udagawa, the correction factor setting means is designed so that whenever a new offset correction factor is obtained for a given temperature range by the correction information acquiring process the new offset correction factor replaces an old offset correction factor.

Re claim 5, in the modified control device of Udagawa, the memory stores relationships between offset correction factors and temperatures of the pressure sensor for removing offset errors resulting from offset variations of the pressure sensor, and the correction means selects an offset correction factor in the memory which corresponds to the estimated temperature by the temperature estimating means, so as to correct output of the pressure sensor with the selected offset correction factor.

Re claim 7, in the modified control device of Udagawa, the pressure sensor ((5) in Frick et al.) is a semiconductor pressure sensor.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Udagawa in view of Frick et al. as applied to claim 3 above, and further in view of official notice.

In the modified control device of Udagawa, the correction factor setting means is designed so that when an offset correction factor that corresponds to a first temperature range is obtained by the correction information acquiring process, if another correction factor that

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corresponds to a second temperature range nearest to the first temperature range has already been obtained by the previously completed correction information acquiring process.

Udagawa, however, fails to disclose that if there is one or more temperature ranges between the first and second temperature ranges, then the offset correction factor of the temperature range sandwiched between the first and second temperature ranges is calculated by interpolation between the offset correction factors of the first and second temperature ranges.

It is well known to those with ordinary skill in the art that when a particular temperature of the pressure sensor is between the first and second temperature ranges, an interpolation between the offset correction factors of the first and second temperature ranges is performed to obtain the offset correction factor for the particular temperature. Therefore, such disclosure by Udagawa is notoriously well known in the art so as to be proper for official notice.

Prior Art

5. The IDS (PTO-1449) filed on February 12, 2004 has been considered. An initialized copy is attached hereto.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents and one patent application: Antonazzi (U.S. Patent 4,570,490), Houben et al. (U.S. Patent 5,211,009), Harris et al. (U.S. Patent 6,237,394), Sherman et al. (U.S. Patent 6,422,001), Nara (Japan Publication 06-299841), and van Nieuwstadt (U.S. Patent Application 2004/0200271) further disclose a state of the art. In particular, van Nieuwstadt discloses that a condition when an engine speed is below a predetermined value can be considered as an engine off condition (see paragraph 0073).

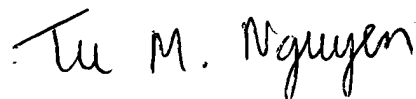
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Communication

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN

Tu M. Nguyen

January 23, 2005

Primary Examiner

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